PERSPECTIVE

RECLAIMING Digital Futures

# Building Staff Capacity through Peer Learning and Passion at the Digital Harbor Foundation

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*Digital Harbor Foundation*

In this resource, Digital Harbor Foundation shares its approach to building internal staff capacity around maker and technology-based learning, even when staff don't come from technical backgrounds, by focusing on peer learning and learning by doing.

Over the years, as we've navigated the landscape of informal and after-school learning, people have come to us trying to figure out where our successes lie. As we explain what we do, we are often met with a chorus of doubt, ringing like "we can't do that because we don't have someone like _____ on our staff." This may have been true when we first started and there were just a handful of us because we relied heavily on vision rather than practice. However we've come to the conclusion that our success is not just a matter of who we hire, but how we maintain a culture of peer learning throughout our organization. This article will break down some key components in the process of building organizational culture staff capacity in technology from the ground up.

CAPACITY

## *Some Assumptions We're Making about You and Your Staff*

- You have experience working with youth (anyone 1-18 years old)!
- You are passionate about learning new things.
- You believe there's an exchange of knowledge between youth and facilitators that flows in both directions.
- You have a practice of making that extends into your own life. For us, this covers a lot of ground (everything from cooking to carpentry, programming to poetry). The key is not that you self-identify as a maker, but that you are producing (not just consuming) in this world.

### *Who We've Become*

Digital Harbor Foundation (DHF) has always existed as a melting pot of people from wildly different backgrounds (in both education background and professional experience). In particular, we've found there to be some sort of magic that happens when educators, technologists, and artists operate in the same space. That said, this breakdown has shifted over time and we find that our staff frequently break the mold of what is expected of their formal training. All this to say that we've noticed patterns in the people we find, but **our background isn't necessarily our destiny.**

### *The Digital Harbor Foundation Culture of Learning*

Officially, DHF's mission is to foster learning, creativity, productivity, and community through education. Unofficially, our vision is to promote productive and sustainable adults in our community. In practice, this takes the form of:

- Increased access to high-growth enrollment and employment opportunities to underserved youth
- Development of career-readiness skills like communication, leadership, and problem solving in our youth

By being so broad in our goals, we have made it much more challenging to establish practices that universally foster this growth. Now we need to prepare youth for nearly any path they may be interested in rather than focusing on a single, predetermined, future.

We looked to each other and members of our community to determine what this success looks like. We found that a **passion for learning** unites us and has extended into our adult lives. For many of us, we have switched careers or are doing something seemingly unrelated to our formal education. Our passion for learning helped us bridge those transitions.

Because youth at DHF respect our staff and identify with staff interests, they constantly come to us with questions. Our goal is neither to give them the answer nor turn them away. Instead, it's our responsibility to make sure they're on the right path toward a solution.

Passion guides us and sets us apart from gatekeepers of knowledge, who many of us came to know in formal learning environments. These can be spaces where adults present themselves as the primary and proper access points to content and comprehension. At DHF, nobody presents themselves as a **knowledge expert**. Of course, we've all learned a lot about tools or processes through experience, but there's always room to grow. As staff, we work to signal to youth where our **interests** lie, rather than project that we know everything about x, y, or z.

Presenting ourselves as non-experts is more active than passive. Because youth at DHF respect our staff and identify with staff interests, they constantly come to us with questions. Our goal is neither to give them the answer nor turn them away. Instead,

it's our responsibility to make sure they're on the right path toward a solution. We ensure that young people stay on track by pointing them toward potential resources. Naturally, this is a skill that relies on accumulated experience.

More often than not, answering a question means looking in one of three places: peers, educational resources, and the internet. Look around you and you'll find that someone else has probably asked the same question. Maybe they've even answered it! This philosophy has taken form in our **"Three Before Me"** policy. When youth have a question about how to do something, staff inquire about the steps youth have taken to find an answer. If this measures less than three separate sources, staff direct youth towards another option.

The key to maintaining trust is ensuring that youth don't feel as if staff are withholding knowledge for withholding's sake. This would reinforce the gatekeeper culture we are trying to avoid. Instead, the discovery of a solution is a shared experience. If a youth comes to staff with a question (and has followed "Three Before Me"), then the answer given to them may be as simple as, "Have you tried searching for _____ instead?"

It's important that this interaction is posed as a question. This leaves room for doubt that the staff member knows whether this path can provide a solution. This doubt is vulnerable, but it reinforces peer learning. When a young person finds an answer, it is a resolution they own rather than one they've been given. When they own that knowledge, they can become a resource for others and the cycle of peer learning is enhanced.

In the same way that we speak and work with our youth as equals, we hold our staff to similar standards. While we are a highly collaborative and energetic group, we expect our staff to take charge of their learning too. This looks similar to how our youth develop: put all you've got into learning and practicing something on your own, knowing that there's support if/when you need it.

### *Learn by Doing*

We believe experience is the best teacher and that this is true for all learners at all levels. When our content developers start with a course as an idea, they begin by scouring the internet for resources relating to that subject. These research skills are key to getting started, but the real learning happens when anyone puts those ideas into practice. Whether it's programming, electronics, or fabrication, our staff test concepts and techniques constantly. Before youth start projects that we've planned, course facilitators

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work through creating these projects themselves. Not only does this allow for the creation of sample projects for youth to see and work from, it ensures that our staff understand how our youth will develop skills and provide an opportunity for feedback.

For example, in a recently offered youth course called Raspberry Pi for the Web, the primary objectives were twofold: learning how a Raspberry Pi can be used as a web server and developing custom content for the web. Early in the course, youth were asked to remotely access another person's Raspberry Pi. The goal was to demonstrate that the Raspberry Pi is a computer that serves information (youth websites) on the web and that information can be accessed in a number of ways. Using the facilitator guide and our learning management system, program staff were first asked to focus on the technical elements of this mini-project. Naturally, they must be able to walk through this task independently before guiding youth through the process.

While it's simple enough to access a computer (the Raspberry Pi) remotely if you have access to that Pi's IP address and login info, the usefulness of that process is less intuitive. The facilitator guide outlined how to remotely access a Pi, but it was up to course facilitators to determine the best way to describe the usefulness of this procedure (i.e. that you can access the information stored on a computer from another computer).

We refine our content and projects by way of communication between program staff and content developers. We all benefit from operating in one central location, but the key is regularly making all parties available to each other for communication. We tackle bigger picture changes between course offerings (before and after) and tinker with smaller, logistical revisions as the course is running.

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Let's return to the Raspberry Pi example. During their prep for Raspberry Pi for the Web, program staff were asked not only to complete this "remote-in" activity, but also find ways for youth to make more meaningful connections. They knew the experience would take place early on, so youth would not yet have established web servers on their Pi's.

Rather than remote into blank or disjointed sites, program staff suggested that youth input four facts about themselves into a blank text editor. Then, they'd each write down their individual IP addresses on a piece of paper and toss it into a bag. Each youth would collect someone else's IP address at random. After learning to remote into that site, each youth would use the command line to access the file containing a classmate' four facts.

The activity became centered around figuring out whose site you had "hacked" into via their new-found technical know-how. As program staff made these adjustments, they communicated with content developers and it was reflected in the facilitator guide and our learning management system. In this way, the course was enhanced as staff prepared to facilitate it.

As the course progressed, program staff found that the technical scope (learning to use a Raspberry Pi and the command line to control) was more limited compared to some other courses. Ultimately, youth took more time developing their personal sites. This utilized HTML and CSS skills that most youth had already acquired through previous web development coursework.

Upon reflection during our course debrief, program staff suggested that this course may better in the context of a youth mini-course (8 course hours) rather than a full-length youth course (56 course hours). Mini-courses give us the opportunity to teach a specific tool or program that works with a young person's existing knowledge the demonstrate the full potential of their skill sets. We'll implement this change in the next version of the course, after which we will come together to reflect and iterate once more.

We can't count on everything to work the first time we teach it, so we're constantly poised to pivot. Again, this is where we rely on **experience, rather than expertise.** It allows our program staff and content developers to come together, and quickly brainstorm ways to navigate challenges with content or facilitation.

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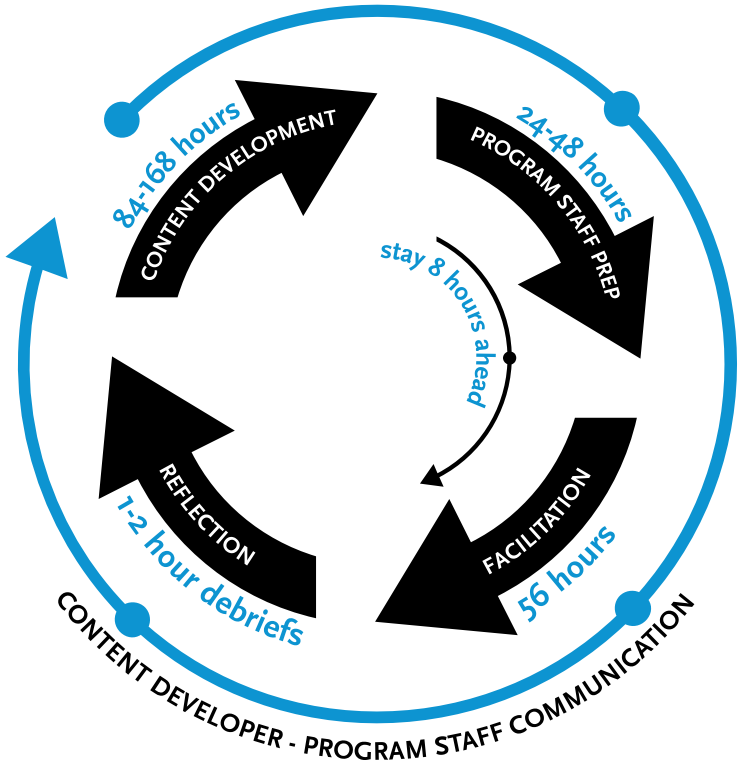
When we talk about changing course content as it's running, these changes need to be made **quickly** (usually within 2-4 days). Of course, when we have staff that have more extensive experience in subject areas it's easier to turnaround changes faster, but this isn't a necessity (or always an option). We expect our program staff to stay only two weeks (or 8 hours/four class sessions) ahead of our youth in terms of content preparation. This is true whether staff have experience in specific subjects or if they're learning content for the first time. We find that when the material is fresh, instructors relate better to their students. They can remember challenges and successes they had in the process of learning in greater detail. For many experts, it's difficult (if not impossible) to remember what it was like to learn fundamental concepts for the first time.




This pace also forces our staff to focus on what's in front of them for a given day. Though our staff have an understanding of what's important within a two week time frame, they really need to know today's content. This means that project prep has a lower level of personal investment than if our staff had months to prepare. *For instance, in order to learn about 3D printing, our staff start by*

*designing small and simple models.* This prevents us from letting our prep projects become precious and take time and focus away from the task at hand (an experience many of our creative staff can attest to). It also ensures quicker turnaround and limits what can go wrong. When they find a method that optimizes output, our staff scale up and modify their designs as time allows. We encourage our youth to prototype and work through projects in a similar manner.

We're not worried about finding projects that "work" right away or forever. It's easy to let fear take over when trying something new and look for a guaranteed win. Our programs operate with an opposing philosophy: try a project (and be prepared to fail at it) many times before deciding that it works.

So what do you do when it *doesn't work?* The real test (and solidifier) of knowledge lies in troubleshooting. Anyone who's taught anything can tell you this. Since our staff aren't necessarily "experts" it's important to prepare them for the very real possibility that things will not go as planned. To do so, content developers and program directors lay out very clear and simplified goals, with the understanding that these are our best intentions. Everything can (and often *should*) be adapted as we go.

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As we prepare and develop content, we outline benchmarks for front-line program staff in our facilitator guide for each course. These guides are the first documents that staff receive when assigned to a course and they guide their planning and preparation throughout its lifetime. Most importantly, they contain what we call our **must-do's** and **can-do's.** These help staff understand what's most important and where content goals are flexible.

**Must-do's** represent the *fundamental skills* that we want our youth to attain by the end of a course. This is what grounds the learning in a subject area and should allow youth to continue learning and exploring the subject going forward. Crucially, this list of skills is always very short, usually limited to *three to five core concepts* over the course of 14 weeks (or 28 class sessions). This does not make them experts! We're looking to drive sustainable learning and for us, this often means working slowly and steadily. We are confident that this will allow our youth to build expertise more effectively over time. If youth struggle in a course, we first look to evaluate their comprehension of these core skills.

For example, when we teach 3D printing, it's essential to cover the basics before moving on to advanced concepts. There are so many physical considerations in the process of 3D printing, but the first and often biggest hurdle is making sure that designs are sized properly. They can't be so big that they don't fit on the printer or so small that they break apart.

This means that youth have to measure their designs within a virtual workspace. It's not necessarily intuitive to gauge the size of an object on your computer screen. Once

they get it, though, youth can use measurement tools to make more complex objects that fit together. If youth are struggling with tolerance (the degree to which 3D printed objects fit together), we step back to reinforce core measurement skills. In this case, the egg certainly has to come before the chicken.

The must-do's are the meat of the course, so we don't want to rush through or overlook them. It's always worth doubling back to refine core-skill development, even if that means getting through less content overall. We work with a diverse group of young people, so it's important that we listen to and recognize the pace at which they learn. Sometimes this even means re-evaluating the attainability of our must-do's, so long as we really develop first-served fundamental skills. That kind of feedback is essential to us as facilitators and helps us better refine content in the future.

**Can-do's** encompass all the learning we hope to happen within a course. Almost every time we offer a course, the sum of the can-do's are far greater than youth or staff capacity, and that's okay! It's always better to have too much, rather than too little content to deliver. Having these goals pushes us because there's always more to learn and accomplish. This is especially true for youth that learn quickly or have pre-developed skills in a given subject area. Rather than trudge through content that they've already mastered, we can activate them with additional challenges. When youth are exceptionally skilled and hit even these higher bars, we adapt their role within the classroom to assist others. We pair youth based on skill and personality to further develop a culture of **peer-learning.**

Again, we're looking to create courses that drive learning in practical and sustainable ways. Can-do's are usefully outlined as the content that can most easily be moved around because it shouldn't impact fundamental understanding of core concepts. Furthermore, we don't despair when we don't get to everything! This leftover content becomes the starting point for next-level courses in these subject areas. We view our youth courses under the lens of research and development. With this frame of reference, adjusting our content per youth needs does not qualify as failure; it's data that informs our decisions going forward!



## Concluding Thoughts

Most of the world looks to a person as an expert when they can verify their knowledge in some tangible way. For some, this may mean having a degree, certificates, or specific professional accomplishments. If you looked at DHF through that lens, many of us would be experts in something other than what we teach. None of that discounts the learning we've done in the years since the organization was founded. Have we gained tremendous insight into ways to serve our youth and community? Absolutely. Do we have more experience and information than the average person with tools and technology? Most likely. Does this make us experts? We don't think so.

To say we're experts feels more terminal than any of us are comfortable with. Deeply rooted in our organizational culture is the mantra **"always be learning."** This means that at no point do any of us arrive at the destination of figuring anything out completely. Particularly when it comes to technology as the ground is constantly shifting underneath us.

Any success we've had has come because we are comfortable with this fluidity. We firmly believe that adopting this mindset may allow others to build staff capacity and community.

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